SEQUENCE LISTING

<110> Donovan, Stephen

<120> CLOSTRIDIAL TOXIN DERIVATIVES AND METHODS FOR TREATING PAIN

<130> botulinum-subP/pain/D2875

<140> 09/489,667
<141> 2000-01-19

<160> 14

<170> PatentIn Ver. 2.1

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<212> PRT
<213> Unknown Organism

<220>
<221> MOD_RES
<222> (11)
<223> AMIDATION

<220>
<223> Description of Unknown Organism: This fragment is substance P and is very well known in the art.

<220>
<223> The Met at position 11 is Met-amide.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

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Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met
1 5 10

<210> 2
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<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: Precursor to substance P, which is very well known in the art.

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<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Shimonaka, et al.,
<303> J. Neurochem.
<304> 59
<306> 81-92
<307> Jul-1992

<400> 2
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly
1 5 10

<210> 3
<211> 13
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: This fragment is a precursor to substance P and is very well known in the art.

<300>
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<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Shimonaka, et al.,
<303> J. Neurochem.
<304> 59
<306> 81-92
<307> Jul-1992

<400> 3

Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly Lys
1 5 10

<210> 4
<211> 14
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:This fragment is a precursor to substance P and is very well known in the art.

<300>
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<312> 1999-04-06

<300>
<301> Shimonaka,
et al.,
<303> J. Neurochem.
<304> 59
<306> 81-92
<307> Jul-1992

<400> 4
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly Lys Arg
1 5 10

<210> 5
<211> 12
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<220>
<223> Description of Artificial Sequence:This fragment is a carboxy-ester synthetic precursor to substance P.

<220>
<223> The Gly at the carboxy terminal (Gly at position 12) is methylated.

<300>

<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Lee,
et al.,
<303> Eur. J. Biochem.
<304> 114
<306> 315-327
<307> Feb-1981

<300>
<301> Pernow, B.
<303> Pharmacol. Rev.
<304> 35
<306> 86-138
<307> Jun-1983

<300>
<301> Regoli,
et al.,
<303> TIPS
<304> 9
<306> 290-295
<307> Aug-1988

<400> 5
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly
1 5 10

<210> 6
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:This is a
carboxy ester synthetic precursor to substance P.

<220>
<223> The Lys at the carboxy-terminus (Lys at position
13) is methylated.

<300>
<310> 08/631,434

<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Lee,
et al.,
<303> Eur. J. Biochem.
<304> 114
<306> 315-327
<307> Feb-1981

<300>
<301> Pernow, B.
<303> Pharmacol. Rev.
<304> 35
<306> 86-138
<307> Jun-1983

<300>
<301> Regoli,
et al.,
<303> TIPS
<304> 9
<306> 290-295
<307> Aug-1988

<400> 6
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly Lys
1 5 10

<210> 7
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<212> PRT
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<220>
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carboxy ester sythetic precursor to substance P.

<220>
<223> The Arg at the carboxy-terminus (Arg at position
14) is methylated.

<300>
<310> 08/631,434
<311> 1996-04-12

<312> 1999-04-06

<300>
<301> Lee,
      et al.,
<303> Eur. J. Biochem.
<304> 114
<306> 315-327
<307> Feb-1981

<300>
<301> Pernow, B.
<303> Pharmacol. Rev.
<304> 35
<306> 86-138
<307> Jun-1983

<300>
<301> Regoli,
      et al.,
<303> TIPS
<304> 9
<306> 290-295
<307> Aug-1988

<400> 7
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly Lys Arg
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<210> 8
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:This is a
      carboxy ester synthetic precursor to substance P.

<220>
<223> The Gly at the carboxy terminal (Gly at position
      12) is ethylated.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Lee,
et al.,
<303> Eur. J. Biochem.
<304> 114
<306> 315-327
<307> Feb-1981

<300>
<301> Pernow, B.
<303> Pharmacol. Rev.
<304> 35
<306> 86-138
<307> Jun-1983

<300>
<301> Regoli,
et al.,
<303> TIPS
<304> 9
<306> 290-295
<307> Aug-1988

<400> 8
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly
1 5 10

<210> 9
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:This is a
carboxy ester synthetic precursor to substance P.

<220>
<223> The Lys at the carboxy terminal (Lys at position
13) is ethylated.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Lee,
et al.,
<303> Eur. J. Biochem.
<304> 114
<306> 315-327
<307> Feb-1981

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<303> Pharmacol. Rev.
<304> 35
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<307> Jun-1983

<300>
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et al.,
<303> TIPS
<304> 9
<306> 290-295
<307> Aug-1988

<400> 9
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly Lys
1 5 10

<210> 10
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:This is a
carboxy ester synthetic precursor to substance P.

<220>
<223> The Arg at the carboxy terminal (Arg at position
14) is ethylated.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>

<301> Lee,
et al.,
<303> Eur. J. Biochem.
<304> 114
<306> 315-327
<307> Feb-1981

<300>
<301> Pernow, B.
<303> Pharmacol. Rev.
<304> 35
<306> 86-138
<307> Jun-1983

<300>
<301> Regoli,
et al.,
<303> TIPS
<304> 9
<306> 290-295
<307> Aug-1988

<400> 10
Arg Pro Lys Pro Gln Gln Phe Phe Gly Leu Met Gly Lys Arg
1 5 10

<210> 11
<211> 4
<212> PRT
<213> Unknown Organism

<220>
<223> This sequence is made up by the first four amino
acids of substance P.

<220>
<223> Description of Unknown Organism:This is a
naturally occuring amino terminal peptide fragment
derived from substance P.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>

<301> Stewart,
et al.,
<303> Nature
<304> 262
<306> 784-785
<307> 1976-08-26

<300>
<301> Skilling,
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<303> J. Neurosci.
<304> 10
<306> 309-1318
<307> Apr-1990

<400> 11
Arg Pro Lys Pro
1

<210> 12
<211> 7
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:This is a
naturally occuring amino terminal peptide fragment
derived from substance P.

<220>
<223> This fragment is made up of the first seven amino
acids of substance P.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Stewart,
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<303> Nature
<304> 262
<306> 784-785
<307> 1976-08-26

<300>
<301> Skilling,
et al.,
<303> J. Neurosci.
<304> 10
<306> 309-1318
<307> Apr-1990

<300>
<301> Lavielle,
et al.,
<303> Biochem. Pharmacol.
<304> 37
<306> 41-
<307> 1988-01-1

<400> 12
Arg Pro Lys Pro Gln Gln Phe
1 5

<210> 13
<211> 9
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: This is a
naturally occuring amino terminal peptide fragment
derived from substance P.

<220>
<223> This fragment is made up of the first nine amino
acids of substance P.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Stewart,
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<303> Nature
<304> 262
<306> 784-785
<307> 1976-08-26

<300>
<301> Skilling,
et al.,
<303> J. Neurosci.
<304> 10
<306> 309-1318
<307> APR-1990

<400> 13
Arg Pro Lys Pro Gln Gln Phe Phe Gly
1 5

<210> 14
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:This is an analog of substance P. This analog contains disulfide Cys-Cys bridges.

<220>
<223> The Cys at position 3 bridges with the Cys at position 6.

<220>
<221> MOD_RES
<222> (11)
<223> AMIDATION

<220>
<223> The Met at position 11 is Met-amide.

<300>
<310> 08/631,434
<311> 1996-04-12
<312> 1999-04-06

<300>
<301> Lavielle,
et al.,
<303> Biochem. Pharmacol.
<304> 37
<306> 41-

<307> 1988-01-1

<300>
<301> Quirion, R.
Dam, T.V.
<303> Regulatory Peptides
<304> 22
<306> 18-
<307> 1988-07-20

<400> 14
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1 5 10